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The Effect of Mergers and Acquisitions on the Performance of Companies – The Greek Case of Ioniki-Laiki Bank and Pisteos Bank

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Abstract:

This study investigates the merger effects of two banks. The merger took place in mid 1999s and the effect was the Alpha Bank. The research is performed in two parts. The first part investigates the merger in the short-term, while the second part investigates the long-term effects of the merger exploring the relative position of the Alpha bank within the industry. Results show a beta-risk value for the Alpha bank which is a reconciliation of the beta-risks coefficients of the two banks, and moreover, reveal that Alpha bank is not only profitable but also competitive within the industry.

Keywords: *Banking Industry, Mergers and Acquisitions, GARCH analysis, the CAPM model and Ratio Analysis.*

Introduction

The reasoning behind mergers and acquisitions (M&A) is that two companies together are more valuable than two separate companies. The key principle behind buying a company is to create shareholder value over and above that of the sum of the two companies. This rationale is particularly alluring to companies when times are tough. Strong companies will act to buy other companies to create a more competitive, cost-efficient company. The companies will come together hoping to gain a greater market share or achieve greater efficiency. Because of these potential benefits, target companies will often agree to be purchased when they know they cannot survive alone (Brigham, 1986; Cybo-Ottone and Murgia, 2000; Brealey and Myers, 2003).

The advantages stemming from M&As have been evaluated in terms of the ability to exploit scale and scope economies, gain market control, economize

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transaction costs, diversify risks, and provide access to existing know-how. Nonetheless, empirical evidence on M&As has also suggested that M&As might fail because of over-optimistic expectations of benefits and underestimation of post-integration difficulties like lack of market or technology relatedness, business culture clashes, etc. (Šević, 1999). The two main approaches to tackle this issue empirically are stock price studies and strategic management studies.

Most of the empirical literature on merger outcomes is based on stock price studies. These studies rely on widely available information on stock prices and apply event study methodology (i.e., to single out the effect of the announcement of M&As on stock price performance by focusing on abnormal returns). A major drawback of this approach lays in the fact that stock price movements rely on the anticipation of investors as to the benefits and costs of M&As rather than on actual value creation (Vander Vennet, 1996; Capron, 1999; Cybo-Ottone and Murgia, 2000; Beitel and Schiereck, 2001; Lepetit, Patry and Rous, 2004).

Conversely, studies of corporate performance are less common because of the difficulty in collecting data and constructing valid proxies for performance. An additional problem lies in the difficulty of controlling other determinants when singling out the effect of M&As on firm performance. Despite these limitations, the issues considered by these approaches are pre-merger profitability, post-merger performance, and who benefits most (the acquirer or the target company?) (Seth, 1990).

Pre-merger profitability stream of research focuses on the study of ex ante corporate performance in order to identify potential acquirers and targets. Mueller (1980) in his summary of the results on company performance studies concludes that there is a negative correlation between performance and the probability of being taken over, although the difference in performance is small and often non significant. The acquirer is typically large, and has higher growth and higher debt levels. Therefore, the weaker the performance of a company, the more likely it is to become a target. Stock price studies reach the same conclusions. This might suggest that the market for corporate control is functioning properly with more efficient companies taking over less efficient ones.

The empirical studies looking at post-merger profitability have mainly used data on stock market returns to assess acquisition performance. In doing so, they focus on market expectations of future cash flow growth in order to capture anticipated outcomes. Nonetheless, these empirical investigations (belonging to the finance literature) have often produced quite diverse results on the conglomerate post-merger performance. The main problem is due to the type of data employed (stock market values) as increases in shareholder value after consolidation may be too limited to confirm efficiency gains. Other empirical studies investigate post-merger performance by examining profit data by line of business (Ravenscraft and Scherer, 1987). However, typically no improvement is detected on average after acquisition.

Finally, the phenomenon has been further explored by using accounting data, but no convergent results have been attained. The lack of convergence in the results

has been attributed to a lack of consistency in methodology, time frame, merger type, country, and sample size used. In this respect, a step forward has been taken by Mueller (1980) who examines acquisition performance in seven countries during the same period and using the same indicators. Nonetheless, Mueller's effort has not established a consistent pattern either. No consistent improvement or deterioration in the profitability of merging firms in the first three to five years following a merger could be detected.

Empirical research has also attempted to disentangle the performance of acquirer and target companies in order to partition the gains from M&As. This issue has been mainly analysed in the corporate finance literature, using event studies. The evidence gathered from this literature consistently favors acquired firms as the gains of the acquirer are often found to be non-significant (Agrawal *et al.* 1992; Hayward and Hambrick, 1997). This implies that acquiring firms often pay large amounts for target firms gaining little or nothing from the announcement of an acquisition. Two main issues arise in this context. First of all, it has been investigated whether the difference in behaviors between the average target and the average acquirer shareholder allows bidding firms to sustain their bids. The results show that there is a great variation in the acquirers' performance following acquisitions, which suggests that this variation may be more important than the average (mean) performance, and appeal to a more risk-taking category of shareholders. Second, as part of the investigation of the partitioning of benefits between a target and an acquirer, questions related to anti-takeover provisions have arisen. In this respect, it has been shown that management tactics to prevent takeovers reduce the probability of a takeover, but raise the acquisition price if the takeover goes through. Therefore, if these tactics favor shareholders of target firms, they damage shareholders of acquiring firms.

Moreover, recent changes in regulatory frameworks (the IFRS, Basel II, and the Financial Conglomerates Directive) could also stimulate moves towards bigger entities. Other, more traditional arguments are, first, defensive reasons, which motivate other banks to look for cross-border M&A opportunities, or risk falling behind in international league tables. Second, cross-border mergers have the potential to reduce bank risk and may therefore be seen as a sound policy of geographic diversification and creation of synergies. Third, in local banking sectors that are already highly concentrated, international M&As seem the only possible way forward for growth.

Literature Review

Vander Vennet (1996) used a sample of 422 domestic and 70 cross border acquisitions of European Community (EC) credit institutions that occurred over the period 1988-1993 to examine the performance effects of M&As. The results of the study can be summarised as follows: (a) domestic mergers among equal-sized partners significantly increased the performance of the merged banks, (b)

improvement of cost efficiency was also found in cross-border acquisitions, (c) domestic takeovers were found to be influenced predominantly by defensive and managerial motives such as size maximisation.

Cybo-Ottone and Murgia (2000) also employed an event study methodology to examine a sample of 54 very large deals, covering 13 European banking markets of the EU plus the Swiss market. They found a positive and significant in value for the average merger at the time of the deal's announcement. However, the results were mainly driven by the significant positive abnormal returns associated with the announcement of domestic deals between two banks and by product diversification of banks into insurance.

Huizinga *et al.* (2001) examined the performance effects of European banks M&As using a sample of 52 bank mergers over the period 1994-1998. Revealed results provided evidence of substantial unexploited scale economies and large X-inefficiencies in European banking. Comparing merging Banks exhibited a lower degree of profit efficiency than average, while small merging banks exhibited a higher level of profit efficiency than their peer group. The dynamic merger analysis indicated that the cost efficiency of merging banks was positively affected by the merger, while the relative degree of profit efficiency improved only marginally. Finally, they found that deposit rates tended to increase following a merger, suggesting that the merging banks were unable to exercise greater market power.

Beitel and Schiereck (2001) examined the value implications of 98 large M&As of publicly traded European banks that occurred between 1985 and 2000. They found that for the entire sample the shareholders of targets earned significant positive cumulated abnormal returns in all intervals studied, while the shareholders of the bidding banks did not earn significant cumulated abnormal returns. From a combined view of the target and the bidder, European bank M&As were found to significantly create value on a net basis.

The study of Beitel, Schiereck and Wahrengoug (2002) builds on and extends the study of Beitel and Schiereck (2001) by examining the same data set but with a different objective. They analysed the impact of 13 factors that include relative size, profitability, stock efficiency, market-to-book ratio, prior target stock performance, stock correlation, M&A-experience of bidders and the method of payment on M&A-success of European bank mergers and acquisitions, in an attempt to identify those factors that lead to abnormal returns to target shareholders, bidders shareholders, and the combined entity of the bidder and the target around the announcement date of M&A. Results showed that many of these factors have significant explanatory power, leading the authors to the conclusion that the stock market reaction to M&A-announcements can be at least partly forecasted.

Diaz, Olalla and Azofra (2004) examined the bank performance derived from both the acquisition of another bank and acquisition of non-banking financial entities in the European Union. The sample consisted of 1,629 banks, where 181 acquisitions were noted over the period 1993-2000. They found that the acquirer obtains some efficiency gain in bank mergers. They also found some evidence on the impact of

takeover on the acquirer when acquiring non-bank firms and when the sample was split by type of acquirer (i.e. commercial banks, savings banks, cooperative banks). In particular their results revealed that the acquisition of financial entities by European banks can increase their profitability. However, a lag of at least two years between the acquisition and the increase in performance was observed. The acquisition of other banks had an effect on acquirers' ROA as was revealed by the increase in the long-term profitability.

Lepetit, Patry and Rous (2004) examined stock market reactions in terms of changes in expected returns to bank M&As that were announced between 1991 and 2001 in 13 European countries, by distinguishing between different types of M&As. To overcome some of the limitations of previous event studies they employed a bivariate GARCH methodology that allows for some beta movements. The results showed that there was, on average, a positive and significant increase in value of target banks, as well as, that the market distinguishes among the different types of M&As.

Dunis and Klein (2005) considered an acquisition as an option of potential benefits. Hence, assuming semi-efficient capital markets, the market capitalisation reflects the market participant's view on the value of those benefits once the merger is announced. In this case, the share price, equivalent to the option, is the cumulated market value of both companies without the merger. They applied the real option pricing theory model to a sample of 15 European bank mergers announced between 1995 and 2000 to examine if these were possibly overpaid. The results showed that the option premium exceeded the actual takeover premium suggesting that, those acquisitions were not on average overpaid.

In Greece the banking and financial sectors have been liberalised considerably since 1987, primarily because of directives from the EU, and are now basically free of state control. The Greek banking system consists of a central bank (The Bank of Greece), 41 commercial banks, 3 investment banks, 1 specialised bank, 7 local cooperative banks, the post office savings bank and the Consignments and Loans Bank. Twenty-three of the commercial banks are foreign, including five American banks. Of the Greek commercial banks, the largest is the National Bank of Greece, which accounts for about one-third of the country's banking business (http://www.tradeport.org/). However, still a few of state-controlled banks as the National Bank of Greece and some specialised financial institutions together control about 71 per cent of deposits and 68 per cent of loans. Foreign-owned banks (including other EU-based banks) control about 9 per cent of deposits and 12 per cent of loans. Greek-owned private banks retain control of the remaining 20 percent of deposits and 20 percent of loans (http://www.tradeport.org/).

Greece's integration in EU Economic and Monetary Union has made timely the question of a radical reorganisation of the banking sector. All sides recognised the need for such reorganisation, but disagreed on the direction, type and content of the necessary reforms. However, many changes have been recorded since then in the

banking sector. Table 1 shows the most important mergers and acquisitions taking place in the recent years.

Methodology

Introduction

The Beta Risk Coefficient evaluation is a very important factor when dealing with stocks, which should be taken into consideration by the inventor for the following reason: (a) the profitability of a stock goes together with the risk, (b) to expect high returns, one has to reckon with a high degree of risk, and (c) high-risk stocks are the only ones promising high returns. For this purpose, various methods have been developed, some of them being of heuristic nature (technical analysis, evaluation of external information, study of the balance-sheet of the company involved etc.), other being of probabilistic and/or of statistical nature. Between the latter we can mention the most popular ones, namely the *market index model* (or simply the *market model*) due to Sharpe (1963), which postulates a linear relationship between the return on a stock and the return on the market, and can be used to decompose total risk into diversifiable and non-diversifiable risk-components, and the *capital asset pricing model* (CAPM), which is rather a model of assets pricing, developed by Sharpe (1963) and Lintner (1965). In this study we firstly apply the market index model, following the methodology of Brailsford, Faff and Oliver (1997), and the CAPM model.

Since the data (stock prices) under investigation are in the form of time series it is necessary to make some comments on some singularities of the financial time series and to identify some factors which require special attention before we can proceed to application of regression techniques to the capital asset pricing model. They pertain to the existence of regular and irregular cyclic fluctuations, to the existence of trend in the time series, the choice of the proper model to describe/forecast, the reliability of the obtained results, and finally to investigate ways of bypassing the problems- without shocking the common sense. Behind these problems is hiding the fact that in the most of cases the treated time series are not stationary. A time series is called stationary if its time mean is constant and if its autocovariance (autocorrelation) function depends only on the time difference between two sections of the time series (hence, its variance is also constant). More simply, a stationary time series not only exhibits no trend by it is also self-similar in any time period during its course.

The first step to any time series analysis is the graphical presentation of the data for visual insight. However, the trend or non-trend stationarity nature of the data has to be verified by investigating the autocorrelation function of the series. For this, we employ the ARCH (Autoregressive Conditionally Heteroscedastic) model and the GARCH (Generalised Autoregressive Conditionally Heteroscedastic) model, which are primarily concerned with modelling changes in variance (or volatility). This family of models finds its optimal field of application in the analysis of regression

and autoregression models with residuals, the variance of which is a function of the values of their previous residuals (Johnson and DiNardo, 1997).

The $ARCH_{(p)}$ effect is tested by Null Hypothesis (H_0) that the coefficients α_1, α_p… α_p of the squares of the p previous error terms are all equal to zero. The $GARCH_{(p,q)}$ effect is detected by testing the Null Hypothesis (H_0) that the coefficients α_0, α_1, α_p,… α_p of the squares of the p previous error terms and the coefficients b_1, b_q,… b_q of the q last squares of variances of the q previous residuals are all equal to zero. Rejection of the (H_0) results to the 'acceptance' (non rejection) of heteroscedasticity in the residuals variance of the regression or autoregressive model.

The analysis of the time-series and the regression analysis are seeking to estimate the deviations of each share movement from that of the all-stock index, and hence, to evaluate the risk hiding in each share. Therefore we need to obtain stationary time-series which can then be used in a CAPM model. For this purpose, we investigate: (a) the autocorrelation function of the time-series, (b) the Unit root test, and (c) the GARCH effect test.

The data

The data consists of 122 daily closing prices for the stocks of IONIKI-LAIKI and PISTEOS banks (the merged banks) covering the period 4-1-99 through 30-6-99 (the period of publicity and negotiations before the official declaration of the merger) and 128 daily closing prices for the stock of the ALPHA bank, which resulted from the merger, covering the period 1-7-99 through 31-12-99. The all-stock index covers the period 4-1-99 through 31-12-99 (250 observations). All measurements are simultaneous so that the calculations are comparable.

The use of longer time series was avoided for the following reasons:
Long time series of economic data, and especially financial data, are not stable, in the sense that the structure underlying the data changes and the results obtained from the application of any reasonable statistical method are, in the most of the cases, meaningless. Technically speaking, the obtained long time series are not stationary.

The time span used covers almost the whole year, so the prices of the shares can be reasonably considered to reflect their yearly course. The series cover part of the summer, the autumn and part of the winter. The use of daily prices include all of the week (working) days, so they can be considered as unbiased, in respect to the probable week's day effect. Finally, 122 and 128 observations for the banks' stocks and 250 observations for the all-stock index are pretty enough for the application of the capital asset pricing model.

List of stocks, symbols and descriptions

The symbols used for this study and their descriptions are as follows:

IL: daily closing stock prices of Ioniki-Laiki bank
P: daily closing stock prices of Pisteos bank
A: daily closing stock prices of Alpha bank

G: daily closing prices of the all-stock Index
IL_t: closing price of stock IL in day t
P_t: closing price of stock P in day t
$A_{t:}$ closing price of stock A in day t
G_t: closing price of the all-stock Index in day t

While the operators and the parameters are presented below:

Operators and parameters

For operators and parameters the following symbols are used, unless otherwise denoted

X(-1) : value of variable X in the period t-1
DX : first difference of variable X
DDX : second difference of variable X, i.e. D(DX)
RX : residuals resulting from a regression of X on an other variable
LogX: natural logarithm of X
U : error term in a regression equation
a : intercept in a simple regression
b : slope (coefficient of the regressor) in a simple regression

All calculations and graphs have been obtained with the help of the Microfit econometric package, except for the ones for the autocorrelation and partial autocorrelation function for which has been used the STATISTICA package.

The Econometric Analysis (The Short-Term Effects Of The Merger)

The econometric analysis is performed in three stages: In the first stage we give some auxiliary results of the descriptive statistics, such as variables' descriptives (means, standard deviations, frequency distribution statistics, etc.) and matrices of correlation. These statistics are useful to acquire insight in to the data. In the second stage we investigate the autocorrelation functions, the partial autocorrelation functions, the existence of unit roots and the GARCH effects in the time series. Finally, in the third stage, we apply the CAPM model in the case of the stocks of the IONIKI-LAIKI and ALPHA banks.

Time graphs of the stocks

The graph 1 exhibits the course of the price of stocks of IL and P banks before the merger and the stock of the resulted bank A after the merger. The graph exhibits that the two time series cannot be stationary. They look rather like random walks. However, this is not disappointed for the regressions, since a random walk becomes a stationary time series (white noise) by differencing the time series. The same behaviour exhibits the stock of the resulted bank A: a random walk. Nevertheless, it is amazing the dramatic drop of the stock P, which in one date falls from 121 to 59 units. It is not easy to clarify if this drop resulted from the merger's rumours in the

market or out of any other reasons. In any case this aberrant value causes a lot of inconvenience in the estimation of the beta risk coefficient in the CAPM regression, as we shall see further down in our analysis. Graph 2 shows the course of the all-stocks index during the whole investigation period. This time series also exhibits the characteristics of a random walk.

On the other hand, tables 2 and 3 reveal the descriptive statistics and the correlation matrices before and after the merger respectively. Comparing the statistics for the two stocks in the pre-merger period (table 2) we realise that the stocks exhibit quite different profile in almost all statistics. First of all, as far as the means, maximum and minimum values are concecued, this dissimilarity was rather expected, since the two stocks are not of the same level of productivity and economic performance. However, it is interesting that the statistics, which relate to the frequency distribution of the variables, i.e. standard deviation, skewness and kurtosis, exhibit also high dissimilarity. This implies different frequency distribution and therefore different behaviour of the two stocks. Considering the correlations in the correlation matrix (table 2) we note that the correlation between the two stocks is rather poor, while the correlations of these stocks with the All-Stocks Index are quite unequal: 0.14630 for the IL stock and -0.52620 for the P stock. It might be the aberrant value of P stock, which causes this difference. However, after the merger the correlation of the new stock A with the All-Share Index is substantially improving reaching the level of 0.83065 (table 3).

Autocorrelation and partial autocorrelation analysis, tests for unit roots and GARCH effects

In this section it is checked whether the time series are stationary. The reason for this investigation is that the optimal field of the GARCH analysis is the stationary time series. We consider here the term stationary, under its weak definition, i.e. constant mean and autocovariance (autocorrelation) function depending not on the time but only on the difference between two time instances $t_2 - t_1$. While it is well known that dealing with observed time series (which is only one realisation of the stochastic process), you can never be sure whether the time series is stationary or not, however, the shape of the time series and the shape of the autocorrelation function in the time domain or in the frequency domain can give some evidence on the nature of the time series.

Thus, we consider all time series in our study, for both stocks, as stationary following the autoregressive scheme of first order AR(1) :

$$X_t = a + bX_{t-1} + U_t \quad t=1,2,\ldots\ldots\ldots N \qquad (1)$$

Where,

N : length of the time series.

X_t : the value of the stochastic variable in time t.

b : a constant between -1 and 1 (the a-coefficient of the AR(1) scheme).

a : constant (intercept).

U_t : random error term in time t with zero mean, constant variance and uncorrelated with all its previous u's.

The choice of the model's order resulted from a procedure of trial and error: we first applied the simple regression in model (1) with satisfactory results concerning the significance of the coefficient a of the variable X_{t-1}, considered as the explanatory variable. For the autoregressive scheme we have limited us to order 1 since the application of models of higher orders, with the help of the Aikake's information criteria (AIC), gave no substantially better results. Therefore, for simplicity reasons the AR(1) scheme was adopted.

To test for the existence of unit root in the time series we difference the variable X and proceed to the ordinary least squares regression

$$DX_t=a+bX_{t-1}+U_t \quad (2)$$

Testing the significance of b, if the test leads to the acceptance of the null hypothesis H_0: b=0, then X is a random walk (with drift if a is significant). If the test rejects the null hypothesis, we accept the alternative hypothesis H_1: b<0 (X is autoregressive scheme of order 1 AR(1)).

To examine the presence of GARCH effect we test the residuals U in the following model:

$$RU_t=a+bRU_t \quad (3)$$

Testing the significance of b, if the test leads to acceptance of the null hypothesis H_0: b=0, then the residuals U contain GARCH effect. If the test rejects the null hypothesis, we accept the alternative hypothesis H_1: b is not 0, therefore, the residual include GARCH effect GARCH(p,q). Table 4 shows the summary results of the autocorrelation analysis, the unit root tests and the GARCH effect test[4]. We can clearly see that Pisteos' bank time series is not stationary (even the LOGP) and moreover, the GARCH effect in the residuals is not accessible to be tested. On the other hand, the new bank, Alpha bank, provides a smoother time series.

The Regressions

The purpose of the regression analysis is to estimate the beta-risk coefficient of the stocks before and after the merger. However, a serious problem arises for the P stock: while the rest of the stocks and the all-stocks index become stationary after differencing the P stock remains non-stationary, not even trend-stationary. Differencing of higher order or log-transformations failed to give plausible results. However, since we cannot leave the stock out of investigation, we estimate twice its beta-risk coefficient using in the first regression the values obtained by differencing the initial values and in the second the differenced values after log-transformation. We adopt as more valid the second regression, not because it results to a higher

[4] (The detailed results of the autocorrelation analysis, the unit root tests and the GARCH effect test are not presented here but are available upon request).

adjusted coefficient of determination but because the log-transformation smoothens the aberrant values in the time series.

For easy reference we summarize the regressions results in the following table 5. The indication 'significant' means significant t-ratio value at level of significance 5% for the intercept and the beta-risk coefficient and significant value of the F-test at level of significance 5% for both parameters.

Studying the table 5 we can infer the following remarks: All the intercepts are not significant. This result could probably be explained that the stocks move up and down more of less proportionally following in the long term the course of the all-stocks-index. However, this is an assumption, which is many times disproved. The F-test rejects for all stocks the hypothesis that both parameters in the models are zero. Here again we can advance as explanation that the stocks follow the all-stocks index. The adjusted coefficient of determination for all regressions takes in poor values. However, taking into consideration the nature of time series under investigation and the small number of the variables involved in each models, the resulted values of the coefficient of determination seems to be satisfactory. The beta-risk coefficients for IONIKI-LAIKI bank and PISTEOS bank before merger are 0.015202 and 0.0004326, accordingly. These values are both significant, positive and less than 1, indicating that the movements of the stocks followed the movement of the all-stocks index in the same direction, but they exhibited less specific risk than the rest of the stocks-although in different degree.

After the merger, the beta-risk value of the resulted ALPHA bank, takes in the value 0.011451, which is a reconciliation of the beta-risks coefficients before merger. This fact could be interpreted as a balancing of the expectations of the different groups of the stockholders of the banks in question.

The Long-Term Effects of the Merger

The second part of our study analyses the long-term effects of the merger. For this end we proceed to the analysis of the performance of the resulted Aplha bank in the years 1999 (year of merger) through end 2003 studying its financial statements. We perform the analysis with the help of financial ratios. While there are several performance ratios pertaining to all activities of the economic units and, hence, a problem is coming up which ratios should be used out of the large number of the index numbers, we limit our study of the ones, which relate to (a) solvency, (b) profitability and (c) managerial efficiency (slightly tailored for the description of the activity and of the Profit and Loss statements of the financial institutions). The indices chosen are the following:

Solvency Analysis

We separate the solvency analysis into long-term and short-term. Long term solvency analysis is examined through the ratio:

$$\text{Long-term debt} / (\text{Long-term debt} + \text{equity}) \qquad (4)$$

While for short term solvency analysis we examine two ratios:

Current assets / Current liabilities (5)

Quick assets / Current liabilities (6)

Profitability Analysis

Two ratios have been used to examine the profitability. They are the following:

Gross profit / (Total assets-Current liabilities) (7)

Gross profit / Net loans (8)

While for the **Managerial Efficiency Analysis** we study the ratio:

Gross profit / Equity (9)

The Banking industry statistics

The financial ratios are of poor informational content value if they are considered in isolation of time and of the industry in which they belong, because one cannot proceed to reliable comparisons. To meet this requirement we supply the evolution of the financial ratios of ALPHA bank covering five years after the merger and the statistic relating to the whole banking industry, such as industry concentration ratio (stake of the market of the 25% bigger banks) and the mean, the standard deviation and the variation of the ratios under investigation for the whole industry. These statistics cover the same period of time, 1999 through 2003.

ALPHA bank financial ratios and banking industry's statistics

Table 6 exhibits the financial ratios of ALPHA bank used in the analysis. Table 7 reveals the banking industry statistics. We have processed the original data, which consist of balance sheets and profit and loss accounts of the banking industry, as a side exercise. All figures in the tables are in percentages.

We comment jointly the tables 6 and 7, since the interpretation of the ALPHA bank's performance is considered in comparison with the performance of the whole banking industry.

Long-tern solvency: The value of this ratio is rather high (maximum value 94.88 %), indicating a small portion of equity in the long-term debt. This is seemingly a sign of weakness of the Greek banks but we think that in principle the banks- as any other firm- have to borrow as much as they can, taking into consideration insolvency matters as well. In order to appraise if the volume of long-term debt is high or small we have to know the intended use of the debt. If the debt is to finance investments, then there is nothing wrong with high levels of debt. And this is the case for the Greek financial institutions as is demonstrated by its spectacular expansion in the last fifteen years. However, the ratio exhibits a clear tendency to decline year by year.

The same falling tendency is exhibited by the mean solvency ratio of the industry. The standard deviation is not substantially changed indicating that no major change has happened in the structure of the long-term solvency during the years under consideration. However, the ever-increasing value of the variation statistic shows diversification tendency of this ratio. The ALPHA bank follows very closely the course of this ratio at the industry level.

Current assets/current liabilities: The value of this ratio for the industry as a whole indicates that the Greek financial institutions almost balance their current liabilities with their current assets (in the year 1999 the current assets exceed the current liabilities). This is a clearly good sign indicating that the sector does not face short-term liquidity difficulties. Nevertheless, the high values of the variation statistic indicate that not all banks are equally able to face their short-term liquidity requirements. The ALPHA bank ratio, however, is substantially lower than that of the industry's average.

Quick assets/current liabilities: This ratio exhibits a rather small value indicating short-term liquidity shortages. But this does not seem to be a serious problems for the Greek financial institutions, since the banks have means to easily borrow money using commercial paper or by reducing the discount rate or eventually by borrowing from the central bank. As the variation measure indicates, there exists a rather high diversification of this ratio. The ALPHA bank's ratio is on average higher than that of the industry's average.

Gross profit / net capital employed: This ratio is an important indicator of the capacity of the financial sector to effectively use its overall long-term resources, in other words it is a good indication of the performance of the Greek financial institutions. From this point of view the results seem to be rather poor for the ALPHA bank in relation to the industry's average. However, the ratio seems to improve in the last examining year of 2003.

Gross profit/net loans: Although this ratio is not improving for ALPHA bank, it is still higher than that of the industry's average. We underline the considerable size of the variation measure for the branch, while for the ALPHA bank is more or less stable. The strong variation of this ratio in the industry for the years 1999 through 2004 indicates a strong differentiation of the competence of the Greek banking organizations.

Gross profit/equity: Again, this ratio is substantially superior over that of the industry's average and exhibits moderate variation in relation to the variation of the ratio in the whole industry.

Conclusions

The stock performance of the resulted bank is not the decisive factor to appreciate the performance of the bank, since the stock value is many times the result of speculative actions, wrong expectations or simply a game of the fortune. Much more informative for the merger success is the study of the balance sheet and Profit and Loss accounts. Of course, the comparison of these ratios is of relative value, since not all companies define the accounts from which the ratios were obtained in exactly the same way. However, performance of ALPHA bank seems to expose in the five years, which followed the merger positive and negative aspects in relation to the bank itself and to the rest of the banking industry: on the one hand the exploitation of the working capital of ALPHA bank was subject to bigger variation and was much less than that of the whole industry (which in turn exhibited much variation), while, on the other hand, the bank obtained better profitability ratios in comparison to the average of the whole industry. These results indicate that ALPHA bank is not only profitable but also quite competitive within the industry.

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Data sources

1) http://www.tradeport.org/
2) http://www.state.gov/
3) Athens Stock Exchange
4) NAFTEMPORIKI: Financial statistics.

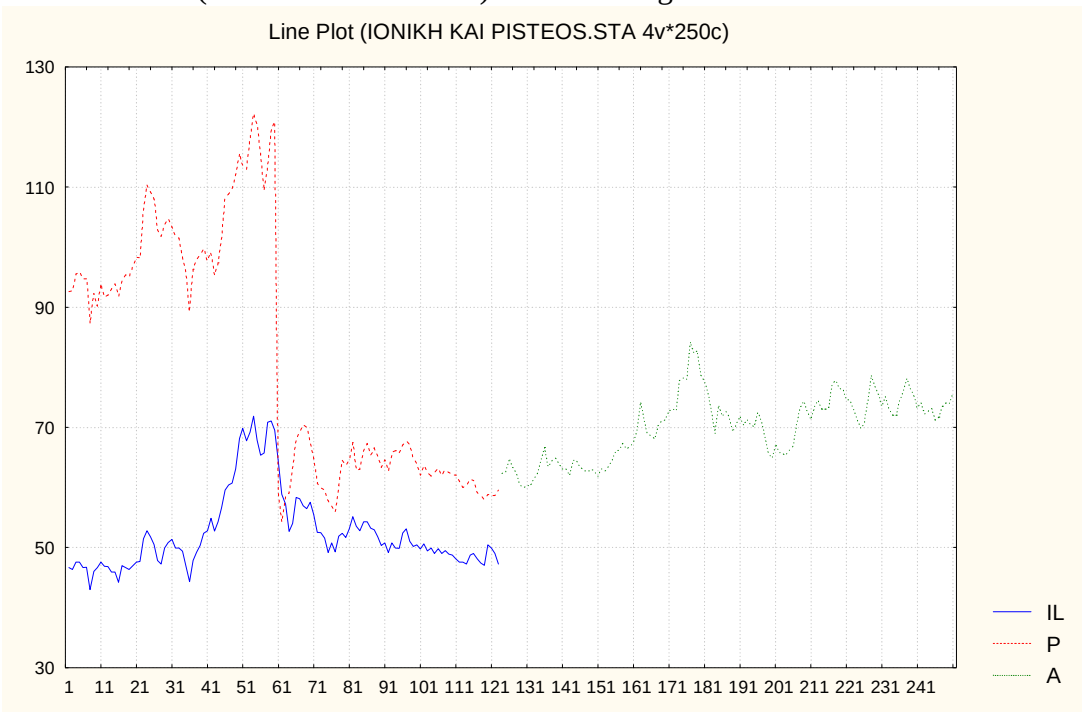
List of tables and graphs

Table 1: Mergers and acquisitions in the Greek banking sector

Alpha Bank Group	➢ Ionian and Popular Bank	Merger-Acquisition (1999)
EFG Group	➢ Ergobank ➢ Interbank ➢ Athinon ➢ Cretabank ➢ Interbank ➢ Credit-Lyonais	Merger (2000) Absorption (1996) Absorption (1998) Absorption (1998) Absorption (1996) Absorption (1997)
Piraeus Bank	➢ Macedonia-Trace Thrace ➢ Xios Bank ➢ Chase Manhattan ➢ NationalWestminster Bank	Absorption (1998) Absorption (1998) Absorption (1997) Absorption (1998)
Egnatia	➢ Central Bank of Greece	Absorption (1998)

(Source: http://www.tradeport.org/)

Graph 1: Stock price movements of the IL, P banks before and after the merger, and of A bank (the resulted new bank) after the merger.



Graph 2: The course of the all-stocks index during the whole investigation period.

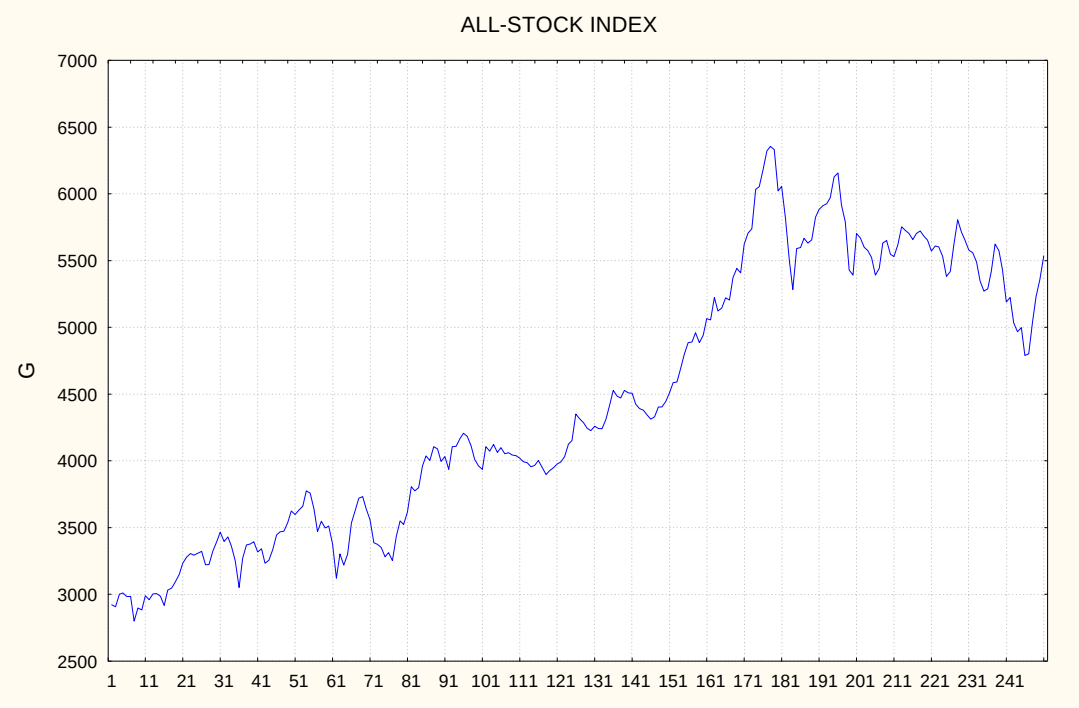


Table 2: Descriptive and Correlation Matrices before merger

Sample period 1 to 122

Variable(s)	IL	P	G
Maximum	71.9000	122.3000	4206.8
Minimum	42.9700	54.2900	2798.2
Mean	52.4234	81.7002	3555.7
Std. Deviation	6.4766	20.7919	390.4599
Skewness	1.4906	.30941	-.0047621
Kurtosis - 3	1.5802	-1.4566	-1.2268
Coef of Variation	.12354	.25449	.10981

Estimated Correlation Matrix of Variables

****

	IL	P	G
IL	1.0000	.39073	.14630
P	.39073	1.0000	-.52620

G	.14630	-.52620	1.0000

****

Sample period 2 to 122

Variable(s)	DIL	DP	DG
Maximum	5.1200	7.8500	235.4600
Minimum	-5.5600	-62.0100	-254.9800
Mean	.0048760	-.27306	9.1765
Std. Deviation	1.8926	6.2761	85.5773
Skewness	.0045192	-7.9078	-.062100
Kurtosis - 3	.75635	75.8136	.59273
Coef of Variation	388.1366	22.9845	9.3257

Estimated Correlation Matrix of Variables

****

	DIL	DP	DG
DIL	1.0000	.54005	.68741
DP	.54005	1.0000	.47364
DG	.68741	.47364	1.0000

****

Table 3: Descriptive and Correlation Matrices after merger

Sample period 123 to 250

Variable(s)	A	G
Maximum	84.2400	6355.0
Minimum	59.8700	4124.8
Mean	70.1353	5252.2
Std. Deviation	5.4023	584.0117
Skewness	.018917	-.37616
Kurtosis - 3	-.69524	-.95021
Coef of Variation	.077027	.11119

Estimated Correlation Matrix of Variables

****

	A	G
A	1.0000	.83065
G	.83065	1.0000

****

Sample period 124 to 250

Variable(s)	DA	DG
Maximum	6.2400	311.9400
Minimum	-4.1100	-359.2400
Mean	.10472	11.1047
Std. Deviation	1.8598	119.8645
Skewness	.56383	-.26055
Kurtosis - 3	.60293	.92765

Coef of Variation 17.7587 10.7940

Estimated Correlation Matrix of Variables

****

	DA	DG
DA	1.0000	.73804
DG	.73804	1.0000

****

Table 4:
Summary results of the autocorrelation analysis and tests for unit root and GARCH effects

Variable (Time series)	**Likely nature of the time**	**Unit Root**	**GARCH effect in the residuals**
IL (IONIKI-LAIKI)	Possibly Stationarity	Yes	No
P (PISTEOS) LOGP	Non-Stationarity	Yes	Non accessible to be tested
A (ALPHA)	Stationarity	No	No
G (All stocks index)	Non-Stationarity	Yes	Yes

Table 5: The regressions results

Dependent variable	Regressor	Intercept	Beta-risk coefficient	Adj. R^2	Value of F-test for both parameters
DIL	DLOGP	0.058914 (Not Significant)	13.9833 (Significant)	0.28726	(Significant)
DIL	DP	0.05449 (Not Significant)	0.16322 (Significant)	0.28729	(Significant)
DIL	DG	-0.13463 (Not Significant)	0.015202 (Significant)	0.46810	(Significant)
DP	DG	-0.59181 (Not Significant)	0.034736 (Significant)	0.21782	(Significant)
DLOP	DG	-0.0076162 (Not Significant)	0.0004326 (Significant)	0.24934	(Significant)

DA	DG	-0.022436 (Not Significant)	0.011451 (Significant)	0.54105	(Significant)

Table 6: Values of the financial ratios

YEAR	Long-term solvency	Current assets/ current liabilities	Quick assets/ current liabilities	Gross profit/ (total assets-current liabilities)	Gross profit/ net loans	Gross profit/ equity
1999	94.19	85.20	55.02	0.67	7.19	42.49
2000	94.88	61.25	59.17	0.47	6.83	43.43
2001	93.05	31.55	31.45	0.42	5.73	30.83
2002	91.71	51.37	47.81	0.49	5.41	25.81
2003	89.92	96.30	14.54	0.63	5.56	24.88

Table 7: Financial ratios and statistics for the period 1999-2003

	1999	2000	2001	2002	2003
	Concentration ratio	Concentration ratio	Concentration ratio	Concentration ratio	Concentration ratio
	Mean	Mean	Mean	Mean	Mean
	Stdev	Stdev	Stdev	Stdev	StDev
	Variation	Variation	Variation	Variation	Variation
Long-term solvency	94.40	94.87	94.29	93.10	88.71
	91.01	91.54	92.02	89.14	82.41
	7.65	6.63	3.91	8.38	12.10
	8.40	7.24	4.24	9.40	14.68
Current assets/ current liabilities	97.59	95.67	99.47	95.54	103.84
	126.62	127.28	123.26	141.50	153.55
	116.34	105.82	81.65	184.28	165.45
	91.88	83.13	66.24	130.23	107.74
Quick assets/ current liabilities	26.38	28.23	31.04	27.98	29.13
	23.72	28.77	30.06	26.05	29.81
	17.03	36.05	32.53	15.23	15.11
	71.79	125.30	108.21	58.46	50.68
Gross profit/ (total assets-current liabilities)	3.60	2.10	1.99	6.93	13.32
	7.08	4.71	3.66	4.82	10.52
	6.80	9.19	8.38	7.87	8.33
	96.04	195.11	228.96	163.27	79.18
Gross profit/ net loans	2.13	1.07	1.09	2.64	7.08
	3.55	1.96	0.89	2.41	6.71
	4.83	5.76	8.22	3.43	4.13
	136.05	293.87	923.59	142.32	61.54
Gross profit/ equity	14.16	8.07	7.21	15.55	25.27
	28.86	10.63	5.16	10.41	20.58
	3.35	32.65	44.88	18.34	14.62
	116.07	307.14	867.76	176.17	71.03

(Source of original data: NAFTEMPORIKI, Annual financial statements)